Accessing Prior Knowledge

Name: _____ Date: _____

Life Cycles

Examine the Life Cycles below. Which student do you agree with and why? Explain below why you agree with Student 1, Student 2, or Student 3.

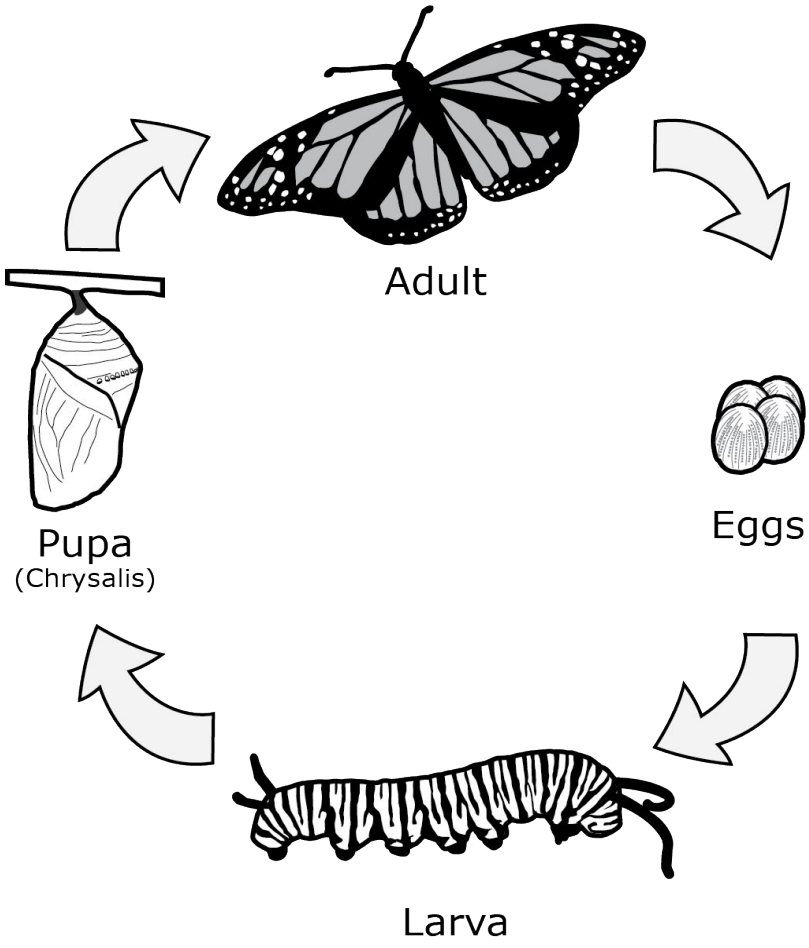
Student 1: The linear life cycle is correct because the life cycle is over when the organism dies.

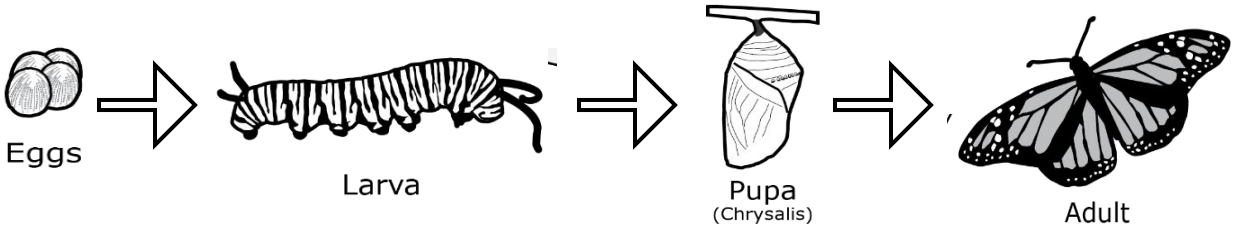
Student 2: The circular life cycle is correct because the adult animal lays the eggs which allows the life cycle to continue.

Student 3: Both are correct because the individual animal dies at the end of the life cycle, but the species of animal continues.

Accessing Prior Knowledge

Monarch Life Cycle





Scope Phenomenon

Name: _____ Date: _____

Growing a Daffodil

1. What does a daffodil flower start as?

_____

_____

2. How do you think a daffodil's growth compares to other plants' growth?

_____

_____

_____

_____

3. Where do you think a seed comes from?

_____

_____

Explore Student Journal

Name: _____ Date: _____

Cycle Hunt

Student Journal

Read the question on each poster. Look around the room to find the poster with the correct answer. Use the provided resources to help.

1. The life cycle stage in which a caterpillar changes into a butterfly.

   _____

2. The plant structure that produces seeds. _____
3. The pattern of growth and development of an animal. _____
4. The body part that a nymph develops as it becomes an adult.

   _____

5. The stage of a chicken's life cycle that is similar to the seed of a plant.

   _____

6. The life stage of an insect whose main purpose is to eat. _____
7. The stage of a frog's life cycle that is missing from the illustration.

   _____

8. A jellyfish halfway through its life cycle. _____
9. This shows the first stage in the life cycle of a particular plant.

   _____

10. The stage of the bug that is missing from the life cycle illustration.

    _____

Explore Student Journal

Cycle Hunt

Student Journal, continued

Draw and label one of the life cycles you've learned about.

Explain how a human life cycle compares to the life cycles you just learned about. Can you name any other animal that has a similar life cycle to ours?

_____

_____

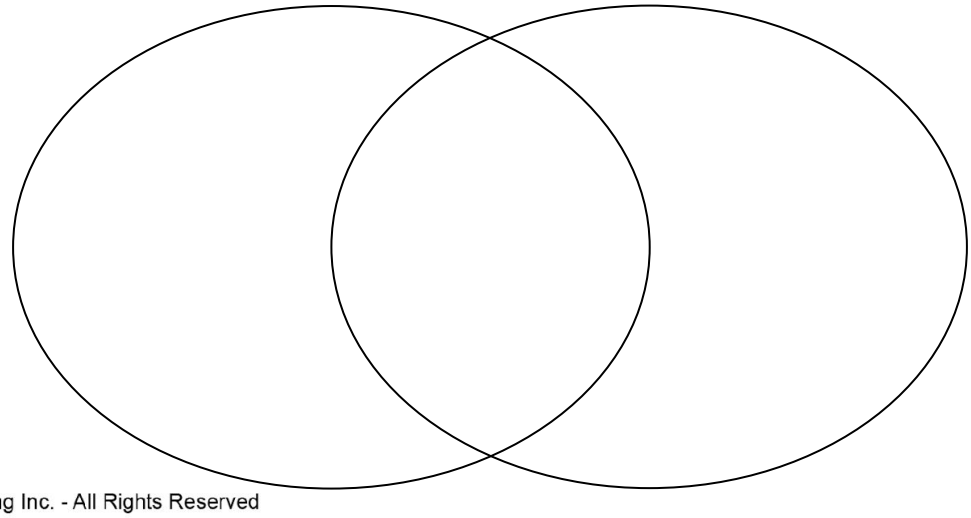
_____

Explain how the life cycles you just explored are similar and how they are different. Create a Venn diagram to compare two of the unique life cycles.

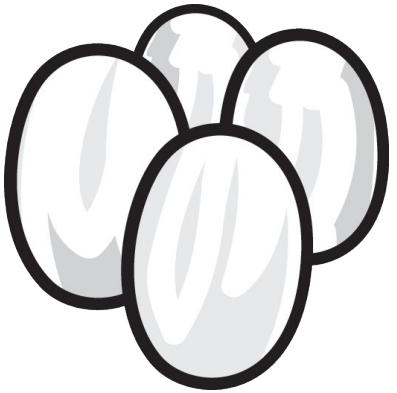
_____

_____

_____



Explore



Insect Eggs

Now find the picture of the life cycle stage in which a caterpillar changes into a butterfly.

Explore

Tadpole

Now find the picture of the plant structure that produces seeds.

Explore

Wings

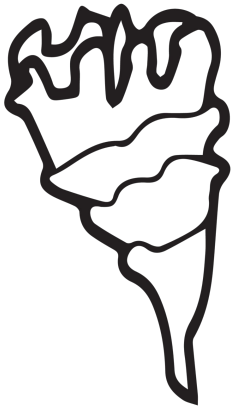
Now find the picture that shows the pattern of growth and development of an animal.

Explore

Insect Larva

Now find the body part that a nymph develops as it becomes an adult.

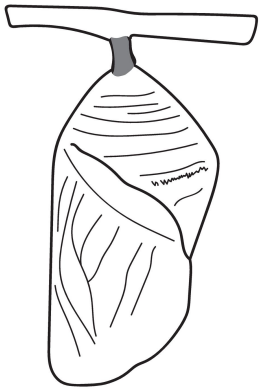
Explore



Budding Polyp

Now find the stage of a chicken's life cycle that is similar to the seed of a plant.

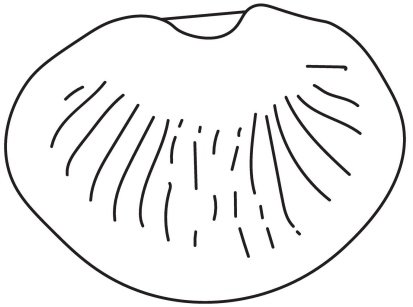
Explore



Butterfly Pupa (Inside a Chrysalis)

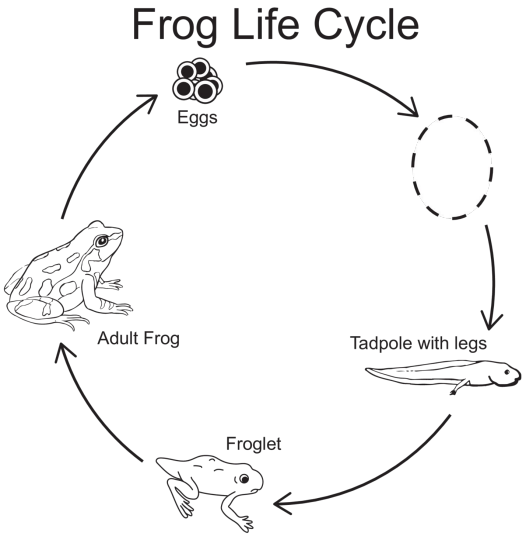
Now find a picture of the life stage of an insect whose main purpose is to eat.

Explore



Seed

Now find <u>the stage of a frog's life cycle that is missing from the illustration.</u>

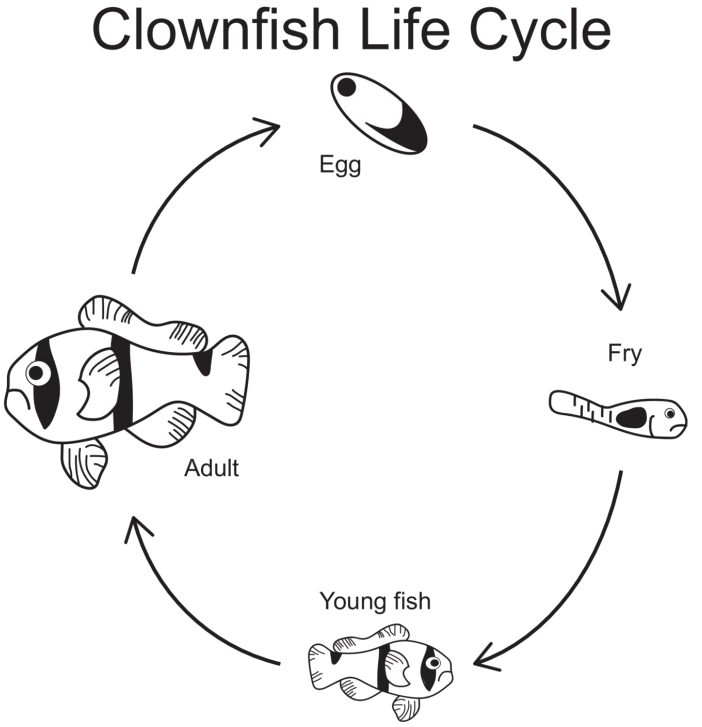


Explore

Lily Flower

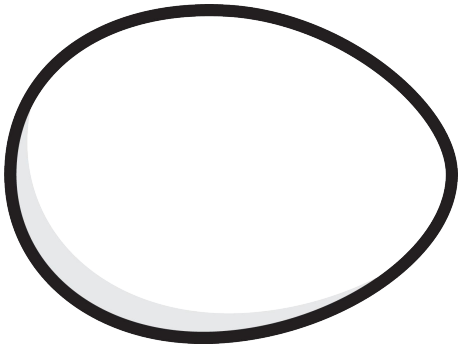
Now find the picture that shows <u>a jellyfish halfway through its life cycle.</u>

Explore



Now find the picture that shows the first stage in the life cycle of a particular plant.

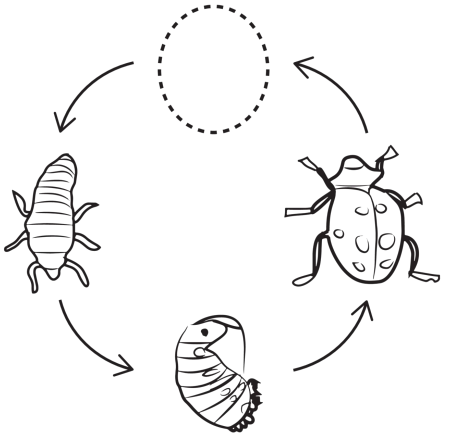
Explore



Egg (Bird)

Now find the <u>stage of the bug that is missing from the life cycle illustration.</u>

Lady Bug Life Cycle



Explore Student Journal

Name: _____ Date: _____

Coming to Life!

Student Journal

The Problem
The local science museum is interested in adding a Life Cycles exhibit to their biology section. Your class has been hired to create three-dimensional models of a variety of life cycles to put on display in the new exhibit.

The Challenge
Construct a 3D representation of a plant or animal life cycle in a shoebox. You will choose an animal or plant, research that organism's life cycle, and build a 3D representation using the available materials.

Criteria and Constraints
- Students are only allowed to use materials provided by the teacher.
- Students may not choose an organism that has been covered in class already.
- Students' final project must include accurate labels and descriptions, arrows pointing to the next stage, and be in the correct order.
- The background in the shoebox should reflect the organism's environment.
- Students should be able to discuss the topics of birth, growth, reproduction, and death of their organism during the presentation.

Your Plan: What steps will you take to make your life cycle? What materials will you need?

_____

_____

_____

_____

_____

_____

_____

_____

Explore Student Journal

Coming to Life!

Student Journal, continued

Your Design: What will each stage of your life cycle look like?

Explore

Name: _____ Date: _____

Coming to Life!

Student Rubric

	2	1	0
Content	Includes adequate detail. Science concepts fully addressed. All constraints met.	Includes some detail. Science concepts partially addressed. Only some constraints met.	Includes little to no detail. Science concepts not addressed. Constraints not met.
Presentation	Project is well organized. Science vocabulary is used correctly.	Project is somewhat organized. Some science vocabulary is used correctly.	Project is unorganized. No science vocabulary is used or vocabulary is used incorrectly.
Collaboration	Final product has a neat appearance with detailed illustrations. Student can easily discuss project findings.	Product is clearly presented with at least one illustration, and student can talk about project findings.	Product is not neatly presented, lacks illustrations, and student requires prompting to discuss findings.

Explore

Coming to Life! Key

Teacher Rubric with Sample Student Responses

	2	1	0
Content	Includes adequate detail. Science concepts fully addressed. All constraints met. Students chose an organism that was not covered in class. Students' final project included accurate labels and descriptions, arrows pointing to the next stage, and stages were in the correct order. The background in the shoebox reflected the organism's environment.	Includes some detail. Science concepts partially addressed. Only some constraints met. Students chose an organism that was covered in class. Students' final project included accurate labels and descriptions, arrows pointing to the next stage, but stages were not in the correct order. The background in the shoebox did not reflect the organism's environment.	Includes little to no detail. Science concepts not addressed. Constraints not met. Students chose an organism that was covered in class. Students' final project did not include accurate labels and descriptions, arrows pointing to the next stage, or stages in the correct order. The background in the shoebox did not reflect the organism's environment.
Presentation	Project is well organized. Science vocabulary is used correctly. Explanations by all group members indicated a clear and accurate understanding of scientific principles, and the topics of birth, growth, reproduction, and death of their organism were discussed.	Project is somewhat organized. Some science vocabulary is used correctly. Explanations by some group members indicated a vague, yet accurate understanding of scientific principles, and only some of these topics were discussed: birth, growth, reproduction, and death of their organism.	Project is unorganized. No science vocabulary is used, or vocabulary is used incorrectly. Explanations by several members of the group did not illustrate much understanding of scientific principles, and the topics of birth, growth, reproduction, and death of their organism were not discussed.
Collaboration	Final product has a neat appearance with detailed illustrations. Student can easily discuss project findings. The group members were able to discuss ideas, listen to each other, offer valid suggestions, and produce a 3D life cycle.	Product is clearly presented with at least one illustration, and student can talk about project findings. The group was able to discuss ideas in a collaborative environment, as well as listen to each other. Some group members did not participate in the conversation. A final 3D life cycle was produced.	Product is not neatly presented, lacks illustrations, and student requires prompting to discuss findings. The group members were able to discuss their ideas, but were not able to put them together to produce a final 3D life cycle.

Life Cycles

Picture Vocabulary

Diversity

Having many different shapes, sizes, colors, etc.

Life Cycle

The particular way a living thing grows, reproduces, and dies

Organism

A single, self-contained, living thing

Reproduction

When one or more organisms bring new organisms of the same type into existence

Birth

Being born from a mother

Growth

An increase in size, abundance, or complexity

Death

The end of life

Reflect

Manny is at his family reunion. First he catches up with his grandparents. People always tell him how much he looks like his grandfather, but Manny does not agree. His grandfather is so much taller, and his face has lots of wrinkles. His grandfather has also lost most of his gray hair. Manny got a haircut last month, and already his hair is getting long again.

Next, Manny spent some time playing with his cousin Lucia. Lucia is only one year old, but she has tons of energy.

She crawls everywhere, and when she tries to stand she falls right back down. She does not seem hurt. She just laughs and tries again. Manny would love to know what Lucia is thinking, but she cannot talk yet.

Finally, Manny spotted his uncle and aunt. He was amazed by the size of his aunt's belly. She said she's pregnant with twins. Imagine having two babies inside you! Manny felt tired just thinking about it.

Why are Manny's relatives so different? How different will Manny be when he is his uncle's or his grandfather's age? What does all this have to do with life cycles?

What are the different stages of the life cycle of living things?

A life cycle includes all the stages of life, from birth to death. A stage is just one step in this process. Manny saw people in different stages of life at his family reunion. He has already lived through some of these stages. Let's learn more about this.

Reflect

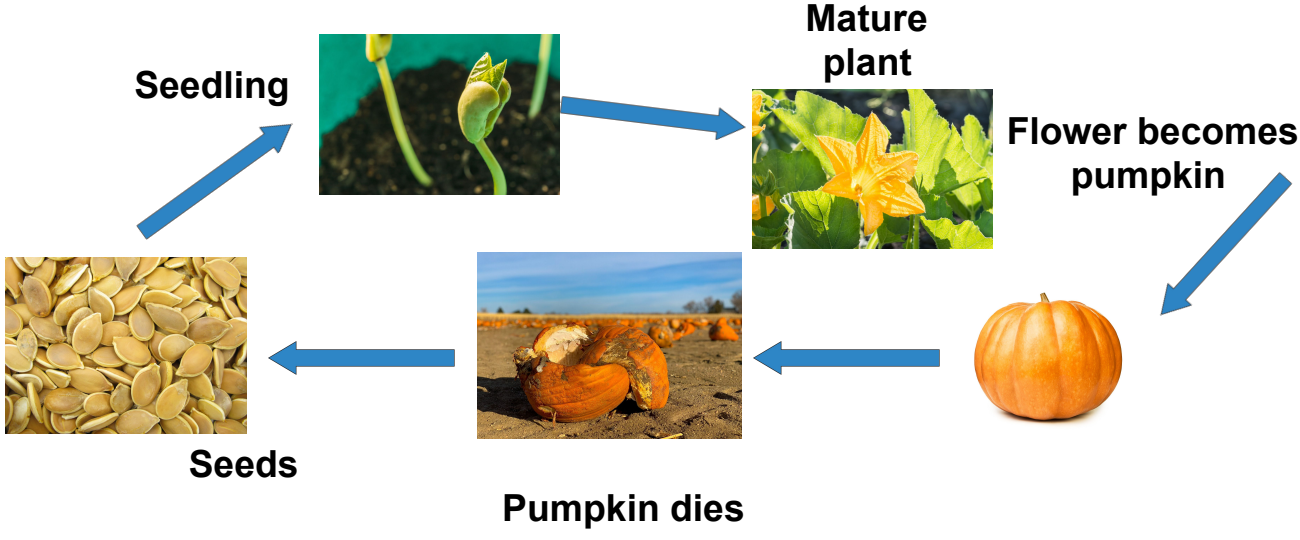
Everyday Life: Our Life Cycle

A baby is growing in Manny's aunt's tummy. Manny also started his life in his mother's tummy. When he was born, Manny was a baby. He became a toddler like Lucia one year or so after that. Manny has grown taller as he's gotten older. In less than 10 years, he will be a teenager. He will finish growing taller and develop stronger bones and muscles as he becomes an adult.

After many years, he will have wrinkles and gray hair like his grandfather. Eventually, he will die. These stages make up the life cycle of a human being. Although the changes Manny sees happen gradually over time, we notice the differences between the stages of his family members.

The Life Cycle of Plants

All living creatures—not only humans—have life cycles. Plants, animals, and even insects have life cycles. Plants start as seeds. When a seed is planted in good soil with water, it grows into a seedling. Over time, the seedling grows into a plant. Some plants produce flowers and fruits, which contain seeds. When the plant dies, the seeds can be planted to grow new plants.



When a plant seed starts to grow, it sprouts or **germinates.** The seed stores food for the baby plant inside the seed. The first thing to grow is the main root, followed by the stem and first leaves. Seeds grow best in soil that is damp, warm, and dark, similar to springtime conditions. A dry seed will stay dormant until it soaks in some water, then it will start to germinate.

Germinate: to sprout the first root from a seed

Look Out!

Let's take a look at another animal life cycle. Not all animal babies look like their parents. Frogs are examples of animals that change a lot from birth to adulthood. Follow the pictures below, starting at the top.

A mother frog lays eggs in wet places. This mass of jelly-like eggs is called frogspawn.

Baby frogs, or tadpoles, hatch from these eggs. Like fish, tadpoles breathe through gills. They have a long tail, but no arms or legs.

As the tadpole grows, skin covers its gills. Tiny legs and arms sprout. Its tail becomes shorter and eventually disappears. It is time for the frog to climb out of the water and breathe air. This is a froglet.

This adult frog now has lungs and breathes air. She cannot breathe underwater. She will find a wet place to lay eggs. Then the tadpoles can slide into water when they are born.

Look Out!

Insects change during their life cycles. Most insects, like butterflies, beetles, and bees, have four stages. Each stage is different. When you look at an insect you can tell what stage it is in.

The Stages of a Butterfly




Egg **Larva** **Pupa** **Adult**

Egg: The first stage is the egg. Adult insects can lay hundreds of eggs. They are very tiny. Sometimes the eggs hatch right away. A mosquito egg hatches in two days! Other eggs survive all winter long before hatching in the spring.

Larva: The next stage is the larva. A caterpillar is a larva! Larvae look like short, fat worms with legs. Larvae eat a lot and grow. They shed their skin when they need to grow. Their new skin then expands before it hardens.

Pupa: After the larva grows enough, that insect goes into a pupa stage. The larva wraps itself up in a hard shell. This is called a **cocoon** or **chrysalis**. The insect does not come out for a while. It does not eat any food. It rests a lot. But, there are big changes happening! Inside, the pupa slowly changes into an adult.

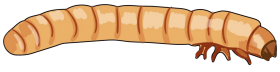
Look closely. You can see butterfly wings inside the chrysalis! The pupa is changing to an adult.

Adult: The insect comes out of its cocoon as an adult. Adult insects look very different than the larvae that enter a cocoon. For example, a wiggly caterpillar enters the pupa stage, but a winged butterfly comes out. Many adult insects fly away and lay eggs.

Try Now

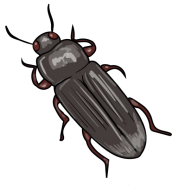
Damselflies only have three stages in their life cycle. Eggs are laid in ponds and hatch into nymphs. Adults live above the water and can fly. Grasshoppers, dragonflies, and cockroaches also only have three stages.

Larva



There are many differences between the beetle larva and the adult beetle. Name three ways they are different.

Adult

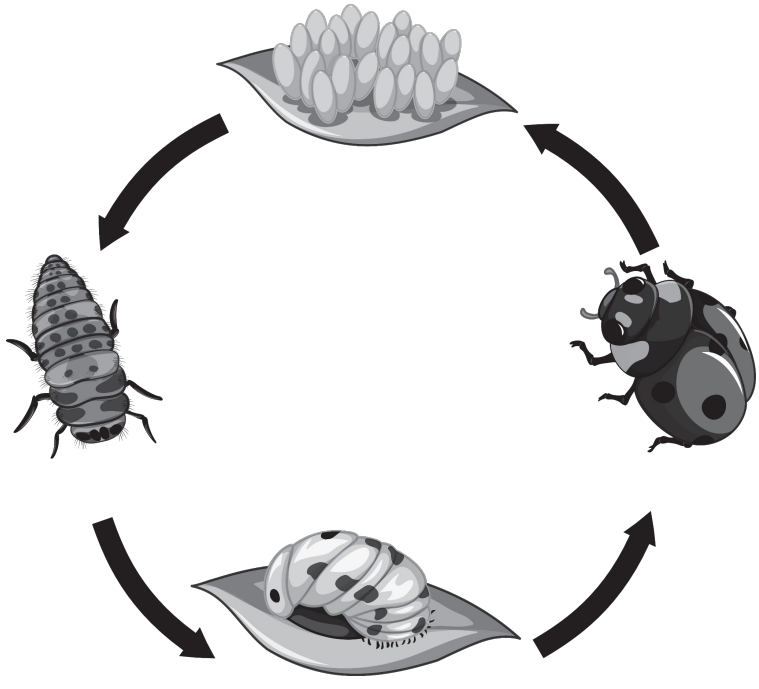


(Beetle)

1.
2.
3.

What do you know?
Identify each stage of the following life cycle. Then, search the Internet for photographs of each stage. Color the pictures based on your photographs.

Ladybug Life Cycle



Try Now

You can catch your own tadpoles and watch them grow.

1. Find a plastic tub or fish tank, a plastic cup or container, and a bucket.
2. Collect rocks or gravel to place on the bottom of your tub.
3. Place a large rock or two in the tub.
4. Visit a pond, small lake, or anywhere with standing water. Take an adult with you.
5. Look around the edges of the pond for tadpoles.
6. Scoop up some pond water in the bucket.
7. Scoop up the tadpoles with the cup and put them in the bucket. Try not to touch the tadpoles. The bacteria from your hands could harm them.
8. Fill the tub about three inches high with pond water. You can also use distilled or spring water. If you use tap water, let it sit about a day before putting in the tadpoles. This will allow the chlorine in the water to evaporate.
9. Make sure some of the rocks are above the water's surface. The tadpoles will need a place to go once they become froglets.
10. Place a couple of plants in the tub.
11. Include some moss and algae from the pond.
12. Let the habitat sit for a day or two. Allow everything in it to settle.
13. Gently scoop the tadpoles from the bucket.
14. Gently release them into the habitat.
15. Feed them a little lettuce every three days. You can tear the lettuce into little pieces. Freeze it overnight. Then allow it to thaw before placing a pinch of it inside the tadpole container.
16. Remove a third of the water every week and replace it with pond water or clean distilled water.
17. Watch the tadpoles turn into froglets.
18. Feed them meat as they start moving out of the water. You can feed them bloodworms or small crickets from a pet store.
19. Place a lid with vents on the tub as the frogs start coming out of the water. Otherwise, they will hop out of the tub!

What Do You Think?

Take a look at the following photographs of a tomato plant's life cycle. Can you name each stage?



How can we learn about the life cycles of different plants and animals?
Scientists observe how plants and animals change over time. Each living thing has physical traits that make it unique and different from others. (A trait is a characteristic or property of something, such as height, weight, and skin or fur color.) The same kinds of living things have similar traits.

For example, look at the tomato plants in the center picture above. As a baby tomato plant starts to grow, it looks like a smaller version of an adult tomato plant. Even though the seedling on the left is small, it has similar leaves, color, and shape as the adult plant on the right. All tomato plants have traits like these at each stage of their life cycles.

Many animals have babies that are just like small versions of themselves. How are the mothers and their babies alike in these photos? How are they different?


Connecting With Your Child

Into the Wild

Next time you take your child to an area with wild animals—for example, a zoo, forest, butterfly house, or park—take that opportunity to focus on the life cycles of animals. Ask your child to identify or describe the life cycle stage for each animal, plant, or insect you see. Then ask your child to name the next life cycle stage for each of those creatures. Point out the other people looking at the animals and ask your child for the life cycle stages of those people. Allow them to come up with creative responses and encourage them to identify the stages based on their own prior knowledge and to support their ideas with logical evidence.

Make sure you take time to visit the nursery or the insect house if you are going to the zoo. Children love young animals, and they are perfect examples of the beginning of a life cycle. This approach will give your child an opportunity to reinforce their learning in a fun way.

Here are some questions to discuss with your child:

- How are the life stages you have observed different from one another?
- Why do we name the different stages of a life cycle?
- Why do we compare the life cycles of different animals, plants, and insects?
- How many stages of the life cycle can you identify in your family?

Linking Literacy

Name: _____ Date: _____

Preview and Predict

Preview	Predict
What is the title of this chapter? _____ _____ _____ _____ _____ _____	What do you predict you will learn after reading the text? _____ _____ _____ _____ _____
What are the names of the sections in this chapter? ○ Section 1: _____ ○ Section 2: _____ ○ Section 3: _____ ○ Section 4: _____	Use the ideas in the section names to summarize what you will be learning. _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
Look through the pages of the chapter, focusing on the pictures, graphs, and other visuals. Choose one of the graphics and describe it. _____ _____ _____ _____ _____ _____	How will this graphic help you learn about the topic? _____ _____ _____ _____ _____ _____ _____ _____

Linking Literacy

Name: _____ Date: _____

Illustrating Steps

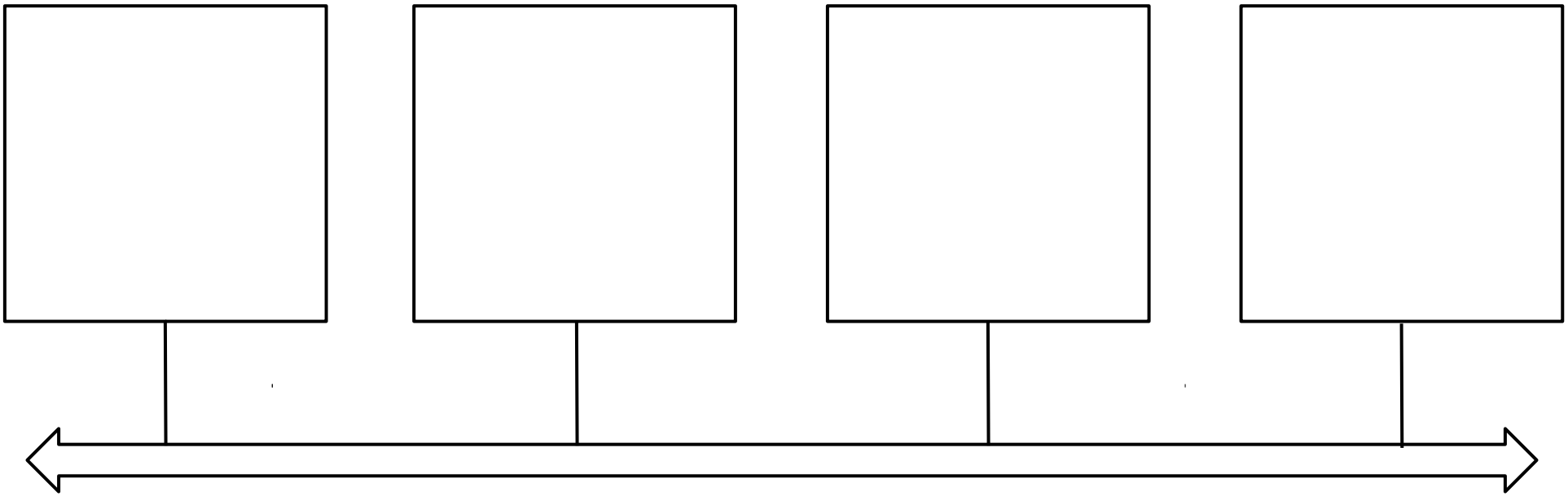
Use the information in the text to draw and describe the steps to show the process of a life cycle.

Step 1:	Step 2:
Step 3:	Step 4:

Linking Literacy

Name: _____ Date: _____

Time Line



Summary

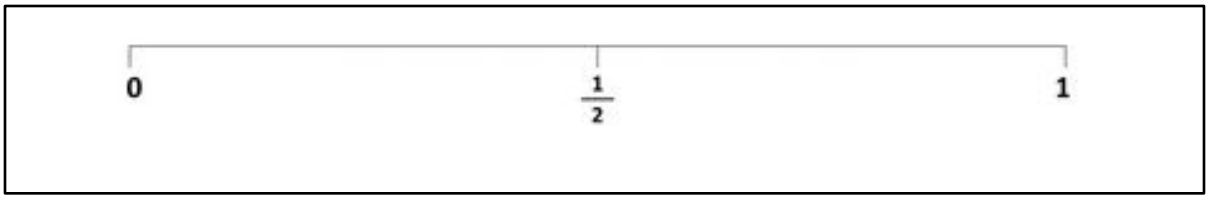
Math Connections

Name: _____ Date: _____

Use the information below to answer question 1.

When frogs complete their life cycle, they become air-breathing, land animals with fully-grown legs and lungs. Lillian saw two frogs hopping on a sidewalk. Frog A hopped 1/2 the length of the sidewalk, and Frog B hopped 3/8 the length of the sidewalk.

1. There is a fraction number line on the sidewalk below. Put an A above the distance Frog A hopped, and put a B above the distance Frog B hopped.



Which frog hopped the farthest, Frog A or Frog B? _____

2. Once a tomato plant reaches the adult stage, it prepares for reproduction by creating seeds. Jen wants to fill six tomato plant packets with tomato seeds. She has 18 pounds of tomato seeds to distribute equally. (Pounds can be shown with the symbol, lb, as in 18 lb.) How many pounds of seeds will be in each tomato plant packet? Solve as a fraction.

Math Connections

Use the following information for questions 3–4.

Four of Mrs. Nelson's 3rd grade students planted tomato plants in their school garden. Each plant grew 24 inches. (Inches can also be shown with the symbol, in, as in 24 in.) A foot is equal to 12 inches.

3. How many feet did each plant grow? Work out the problem below.

4. If there were four plants in the garden, how many inches were the plants all together?

Math Connections

Use the following information to answer questions 5–7.

Jamal's class is learning about the life cycle of a frog. They learn that frogs lay their eggs in wet places, such as water, and that they can lay several thousand eggs at one time into clumps. Jamal's class is observing a clump that has 824 eggs.

5. If only 609 eggs hatch into tadpoles, how many eggs did not hatch?

6. The tadpoles are beginning to develop legs and lungs. If only 408 of the 609 tadpoles start to develop, how many tadpoles did not start to develop?

7. Of the 408 tadpoles that started to develop, only 209 of them have become adult frogs. Their legs and lungs are developed, and they can live on the land. How many tadpoles did not become adult frogs?

Reading Science

Name: _____ Date: _____

The Life Cycle of a Frog

1 A tiny green frog swims across the pond and back to land. She has just laid a cluster of eggs. She laid them in a calm section of water. They look like black spots inside a clump of clear jelly. The mother frog will never go back to these eggs. The young ones will be on their own when they hatch.

2 The frogs that hatch will go through many changes before becoming adults. The series of changes that a living thing goes through is known as its **life cycle**. Cycle is another word for circle. These changes happen over and over again the same way. That is why we call these changes a cycle, or circle.

3 All living things have life cycles. Some go through small changes, but frogs go through some major changes during their life cycles. Let's take a closer look at the life cycle of a frog.

Stage 1: Egg

4 Most frogs lay many eggs at once. The more eggs the frog lays the better the chance that they will survive. There are many dangers that could hurt the eggs. Other animals might eat them. Also, a storm could cause rough waters for the eggs. If the eggs survive, it usually takes between 6 and 21 days for them to be ready to hatch.

Stage 2: Tadpole

5 You may have seen tadpoles swimming around in a pond or puddle. They are **fragile** or weak when they first hatch. The tadpole tries to find a piece of grass or a weed to stick to. It will stay there until it is strong enough to swim on its own. The tadpole is ready to explore after about 10 days. It has gills just like fish. The gills allow it to breathe underwater.

Reading Science

Stage 3: Froglet

6 The tadpole goes through many changes. Skin grows over the gills. The head gets longer. Its legs begin to pop out. It looks like a frog with a long tail. The froglet will start to eat different types of food, such as small insects or plants.

Stage 4: Adult frog

7 Once the tail disappears, the froglet is a true frog that breathes with lungs. The adult frog will look for a mate. They will lay their own eggs. Then, the circle of life, or life cycle, will start all over again!

Reading Science

1 Which of the following things does NOT have a **life cycle** (second paragraph)?

A A tomato plant

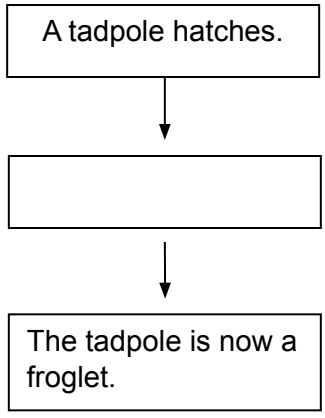
B A butterfly

C A rock

D A person

---

2 What goes in the empty box?



A The tadpole becomes an adult frog.

B The tadpole grows legs.

C The tail disappears.

D The egg hatches.

---

3 What would happen to a tadpole if you took it out of water?

A It would grow legs.

B It would not be able to breathe.

C It would eat small insects.

D It would lay eggs.

Reading Science

4 If something is **fragile** (fourth paragraph) it is–

A strong.

B young.

C easily destroyed.

D fierce.

---

5 An example of a subheading is:

Stage 1: Egg

The author uses subheadings to tell the reader–

A the main idea of the next paragraph.

B how to pronounce the important words.

C the meaning of important words.

D the main idea of the entire passage.

Engineering Connections

Name: _____ Date: _____

Engineering Design Process – Define the Problem, Brainstorm, Plan, Build, and Test

1. Define the Problem

The Problem
Your school's garden needs tomato cages to help support tomato plants as they grow. Design and build a structure that will help the tomato plants grow throughout their life cycles.

Criteria and Constraints

- The structure must be constructed out of the given materials.
- The structure must be at least 40 cm tall.
- The structure must stand on its own for at least 1 minute.

2. Brainstorm

Write down any ideas you have to solve the defined problem. If you need more information, write down what you need to know, and ask your teacher for permission to research the answer.

Engineering Connections

3. Plan

Choose one of the ideas you wrote down while brainstorming. Draw your plan, and label the parts. Be sure to list all materials needed to carry out the plan.

4. Build and Test

Build your design, and test it. Does it meet all the criteria and constraints? Does it solve the problem? Use the space below to list what problems you need to fix in your design.

Engineering Connections

Engineering Design Process Student Rubric

Category	3	2	1	0
Brainstorm	The student listed multiple brainstormed ideas.	The student listed a couple brainstormed ideas.	The student listed only one brainstormed idea.	The student did not attempt to brainstorm a solution.
Plan	The plan could successfully solve the problem.	The plan has some issues that would make it unlikely to fully solve the problem.	The plan would not solve the problem at all.	No plan was created.
Build and Test	The student successfully built their planned solution, tested it, and identified areas for design improvement following the test.	The student successfully built their planned solution and tested it but did not identify areas for design improvement.	The student successfully attempted to build their planned solution but did not test it.	The student did not attempt to build.
STEM Skill: Critical Thinking	The student presented an evidence-based solution to the posed problem or scenario.	The student presented a solution to the posed problem or scenario, but they did not include any evidence from research.	The student presented a solution that did not align with the posed problem or scenario.	The student did not present any solution to the posed problem or scenario.
STEM Skill: Promptness and Time/ Resource Management	The student completed work on time and planned and utilized resources or materials appropriately with no waste.	The student completed work on time and utilized some resources appropriately with little waste.	The student completed work on time but did not plan out the use of resources or materials, resulting in waste.	The student did not complete the work on time and wasted resources or materials.

Content Connection Video

Name: _____ Date: _____

Life Cycles

1. What is a life cycle?

2. Why is a life cycle also called the circle of life?

3. How are the life cycles of organisms different?

4. What are the steps in a plant's life cycle? What happens during the steps?

Content Connection Video

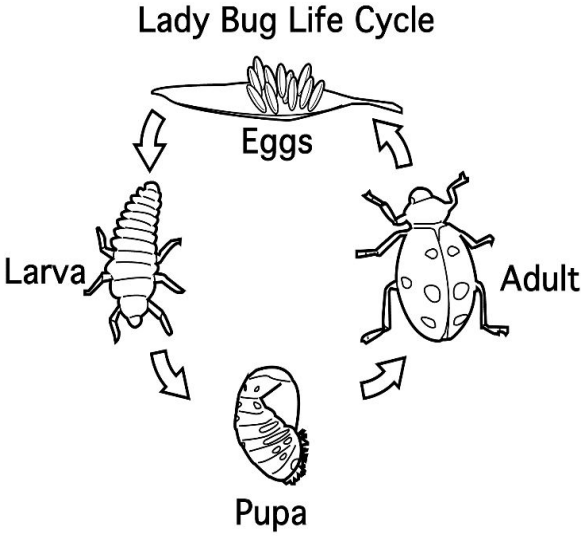
5. How are the life cycles of plants and animals the same? How are they different?

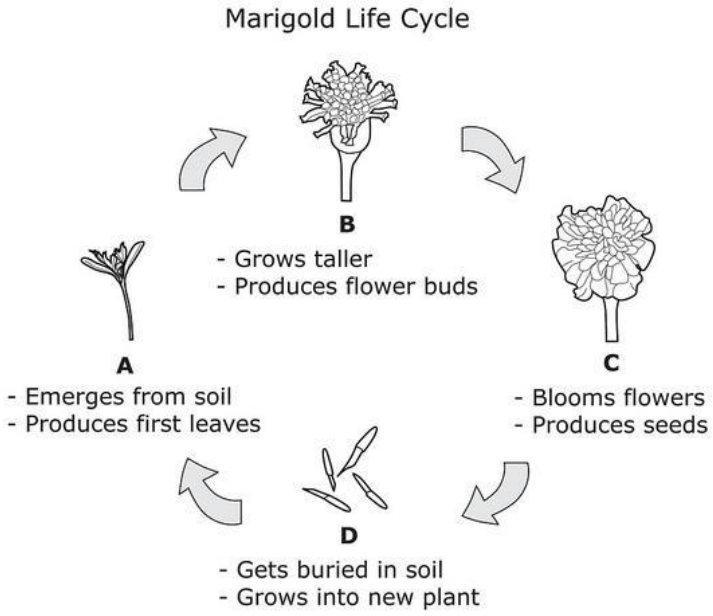
Claim-Evidence-Reasoning

Name: _____ Date: _____

Scenario

Plants and animals go through life cycles which allow their species to survive. Biologists are scientists who study living things. Scientists often use models to help them understand information.





Prompt

Are the life cycles of a ladybug and a marigold similar in any way?

Claim:

_____

_____

_____

Evidence:

_____

_____

_____

Claim-Evidence-Reasoning

Life Cycles CER

Rubric for writing a scientific explanation

Points Awarded	2	1	0
Claim	Makes an accurate and complete claim.	Makes a claim that is inaccurate or incomplete.	Does not make a claim.
Evidence	Provides more than two accurate pieces of evidence.	Provides one to two accurate pieces of evidence.	No response given or response is off topic.

Open-Ended Response

Name: _____ Date: _____

Life Cycles

Short Answer

1 Describe the life cycle of a chicken.

_____

_____

_____

2 Describe the life cycle of a butterfly.

_____

_____

_____

3 What are three similarities and three differences between the life cycle of a chicken and a butterfly?

_____

_____

_____

Multiple Choice

Name: _____ Date: _____ Group: _____

1 What is one way that all plants and animals are the same? They all–

A grow inside of their mother.

B start out small and grow larger.

C live the same amount of time.

D look exactly like their parents.

2 Which pair will be the most different in their life cycles?

A Two cats that were born on the same day

B Two cats that were born on different days

C A cat and a frog that were born on the same day

D Two frogs that were born on different days

Multiple Choice

3 Two seeds will have the same life cycle if both seeds are–

A the same size.

B from the same plant.

C the same color.

D planted in the same soil.

4 What order of life stages do all living things go through?

A Growth, reproduction, birth, death

B Birth, death, growth, reproduction

C Reproduction, death, birth, growth

D Birth, growth, reproduction, death

Multiple Choice

5 Many frogs live in a pond. What can frogs do that can result in frogs being in the pond from year to year? The frogs can–

A have baby frogs.

B die after a few years.

C grow to very large sizes.

D eat only certain foods.

Life Cycles

Guided Practice - Play-Doh Organism Models

Note: Due to the nature of this element, not all sections of the activity can be completed and submitted online by students.

Description

Students create life cycle models of various organisms and describe the similarities and differences observed.

Materials

Printed Materials
1 Life Cycle Model Examples (per teacher)

Reusable
Permanent markers (per student)
Pencil (per student)
Stapler (per group)

Consumable
Paper plates (per student)
Play-Doh®, assorted colors (per group)
Index Cards (per student)

Procedure

1. List several organisms on the board: moth, ladybug, butterfly, beetle, mosquito, frog, apple tree, and tomato plant. Assign an organism to each student or allow them to select their own. Make sure that they are not all picking the same organisms so that you end up with a variety of models.
2. Give each student a paper plate. Ask them to write their name on the back of the plate with the permanent marker.
3. Tell the students that they are going to use Play-Doh® to create a life cycle model of their chosen organism. Use the attached pictures to show them an example of what you expect.
4. Each part of the life cycle should be placed on the paper plate, along with drawn arrows depicting the flow of the cycle. The students should label each part of the life cycle with the permanent marker.
5. Have each student write a description of the life cycle of their organism on an index card with their pencil. Use the stapler to attach the index card to the bottom of the paper plate.
6. Display all the models in a centralized location. Ask the students to describe the similarities and differences of the life cycles.

Guiding Points

- Some students may not be familiar with some of the organisms. You may want to allow them access to the Internet or another resource to look up the life cycle of their organism. Google Images is an excellent place to find graphics.
- The students should be encouraged to try and create a realistic representation of their organism (color, shape, and size). For example, they shouldn't be using pink Play-Doh® to create a model of a frog life cycle.

- Some students may finish before others. You may want to allow them to use a digital camera to take pictures of their life cycles. They can take a picture of each stage as it is added to the paper plate. The images can be uploaded to PowerPoint as a photo album and looped continuously. This will create a sort of “claymation.”

Guiding Questions

1. Which of the organisms follow the “E-L-P-A” life cycle? (egg, larva, pupa, adult)
2. Which of the organisms go through metamorphosis, or change completely, as they live and grow?
3. Which organisms have similar life cycles?
4. Which organisms have different life cycles?
5. Describe the life cycle of your organism.

Guided Practice

Name: _____ Date: _____

Check Understanding

Complete each statement using the word bank.

Word Bank				
adult	reproduce	birth	organism	life cycle

1. Organisms can only _____, or create offspring, at the _____ stage of life.

2. At _____, most organisms start off as eggs or seeds.

3. A _____ is the way _____, or living things such as plant and animals, grow, reproduce, and die.

Answer the question below. Use additional paper if needed.

4. Compare and contrast the life cycles of a cricket, butterfly, and a pinto bean plant. Be sure to include similarities and differences at birth, during growth, for reproduction, and at death.

_____

_____

_____

_____

_____

_____

_____